FIG. 1

FIG. 1A	FIG. 1B
	FIG. 1C

FIG. 1A

S30

CALIBRATION EXECUTION REQUEST DETAILED STATUS	
BIT	CONTENTS
1st BIT	–
2nd BIT	DENSITY CONTROL EXECUTION REQUEST
3rd BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST
4th BIT	–
5th BIT	LASER INTENSITY MEASUREMENT EXECUTION REQUEST
6th BIT	DRUM PHASE ADJUSTMENT EXECUTION REQUEST
7th BIT	–
8th BIT	–
9th BIT	–
10th BIT	–
11th BIT	–
12th BIT	–
13th BIT	–
14th BIT	–
15th BIT	–
16th BIT	PARITY BIT

(A)

(B)

FIG. 1B

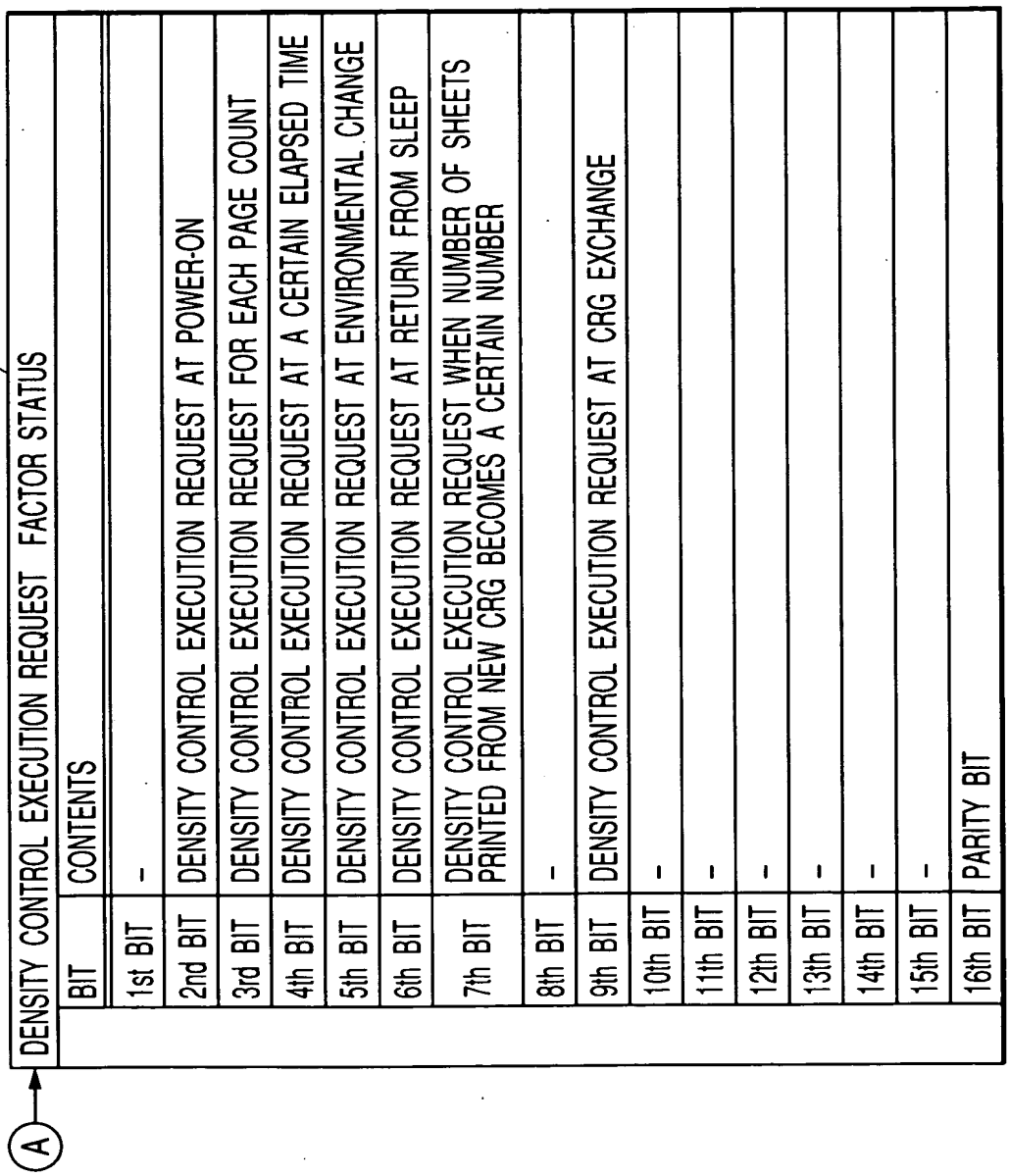

S31
A
DENSITY CONTROL EXECUTION REQUEST FACTOR STATUS
BIT
CONTENTS
1st BIT
-
2nd BIT
DENSITY CONTROL EXECUTION REQUEST AT POWER-ON
3rd BIT
DENSITY CONTROL EXECUTION REQUEST FOR EACH PAGE COUNT
4th BIT
DENSITY CONTROL EXECUTION REQUEST AT A CERTAIN ELAPSED TIME
5th BIT
DENSITY CONTROL EXECUTION REQUEST AT ENVIRONMENTAL CHANGE
6th BIT
DENSITY CONTROL EXECUTION REQUEST AT RETURN FROM SLEEP
7th BIT
DENSITY CONTROL EXECUTION REQUEST WHEN NUMBER OF SHEETS PRINTED FROM NEW CRG BECOMES A CERTAIN NUMBER
8th BIT
-
9th BIT
DENSITY CONTROL EXECUTION REQUEST AT CRG EXCHANGE
10th BIT
-
11th BIT
-
12th BIT
-
13th BIT
-
14th BIT
-
15th BIT
-
16th BIT
PARITY BIT

FIG. 1C

S32

B → COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST FACTOR STATUS

BIT	CONTENTS
1st BIT	–
2nd BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT POWER-ON
3rd BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST FOR EACH PAGE COUNT
4th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT A CERTAIN ELAPSED TIME
5th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT ENVIRONMENTAL CHANGE
6th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT RETURN FROM SLEEP
7th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST WHEN NUMBER OF SHEETS PRINTED FROM NEW CRG BECOMES A CERTAIN NUMBER
8th BIT	–
9th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT CRG EXCHANGE
10th BIT	–
11th BIT	–
12th BIT	–
13th BIT	–
14th BIT	–
15th BIT	–
16th BIT	PARITY BIT

FIG. 2

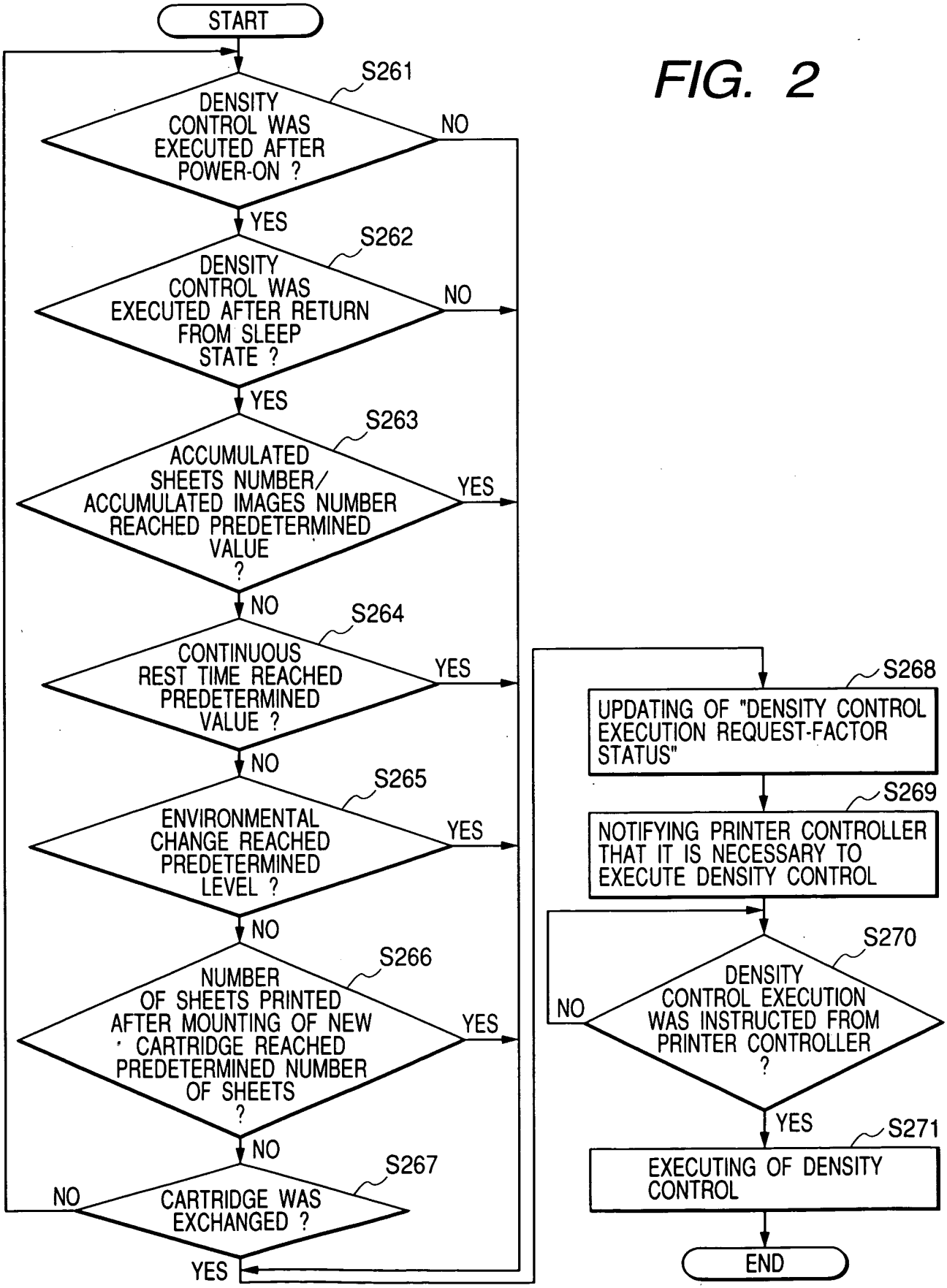

START
S261
DENSITY CONTROL WAS EXECUTED AFTER POWER-ON ?
NO
YES
S262
DENSITY CONTROL WAS EXECUTED AFTER RETURN FROM SLEEP STATE ?
NO
YES
S263
ACCUMULATED SHEETS NUMBER/ ACCUMULATED IMAGES NUMBER REACHED PREDETERMINED VALUE ?
YES
NO
S264
CONTINUOUS REST TIME REACHED PREDETERMINED VALUE ?
YES
NO
S265
ENVIRONMENTAL CHANGE REACHED PREDETERMINED LEVEL ?
YES
NO
S266
NUMBER OF SHEETS PRINTED AFTER MOUNTING OF NEW CARTRIDGE REACHED PREDETERMINED NUMBER OF SHEETS ?
YES
NO
S267
CARTRIDGE WAS EXCHANGED ?
NO
YES
S268
UPDATING OF "DENSITY CONTROL EXECUTION REQUEST-FACTOR STATUS"
S269
NOTIFYING PRINTER CONTROLLER THAT IT IS NECESSARY TO EXECUTE DENSITY CONTROL
S270
DENSITY CONTROL EXECUTION WAS INSTRUCTED FROM PRINTER CONTROLLER ?
NO
YES
S271
EXECUTING OF DENSITY CONTROL
END

FIG. 3

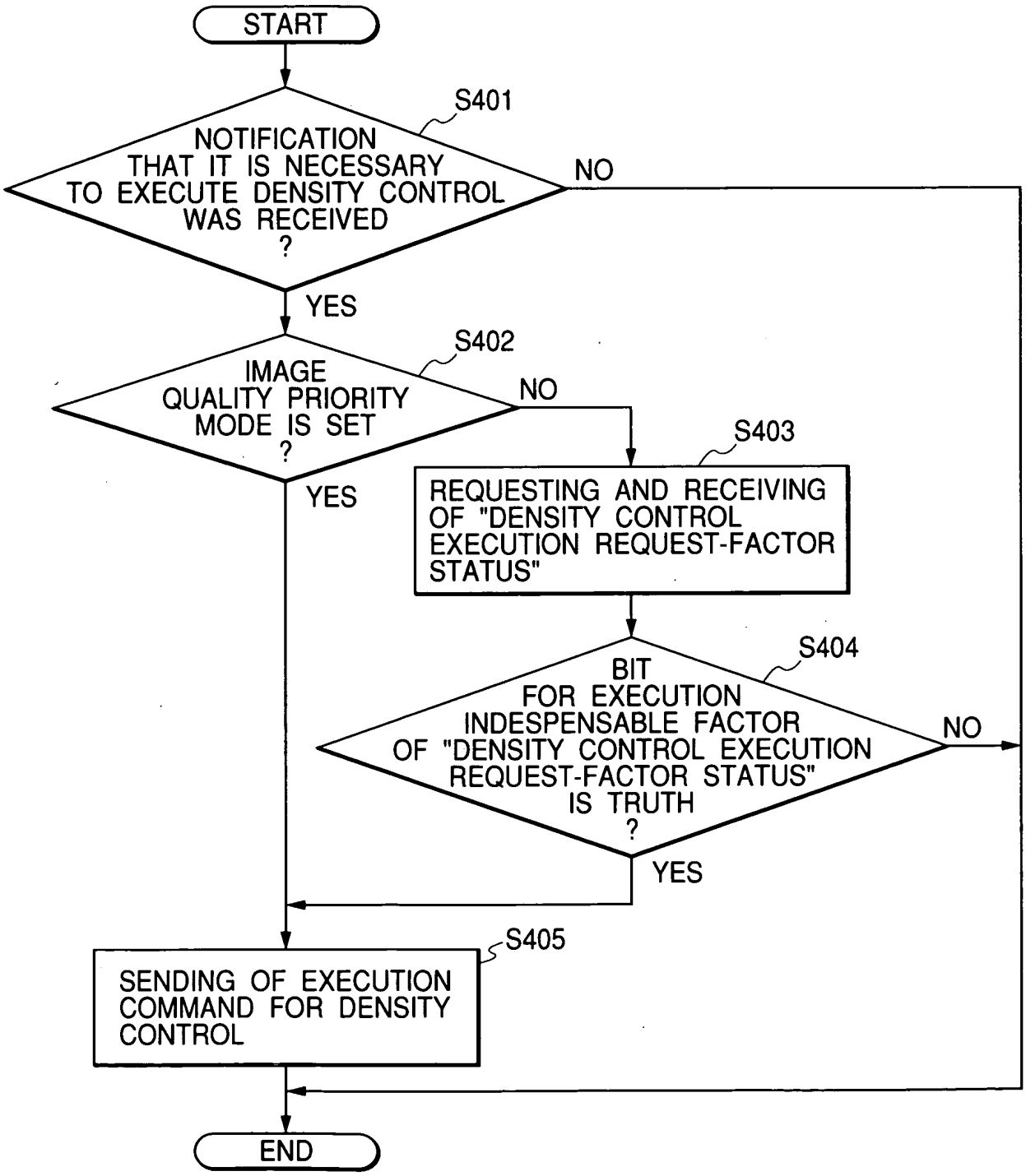

START
S401
NOTIFICATION THAT IT IS NECESSARY TO EXECUTE DENSITY CONTROL WAS RECEIVED ?
NO
YES
S402
IMAGE QUALITY PRIORITY MODE IS SET ?
NO
YES
S403
REQUESTING AND RECEIVING OF "DENSITY CONTROL EXECUTION REQUEST-FACTOR STATUS"
S404
BIT FOR EXECUTION INDESPENSABLE FACTOR OF "DENSITY CONTROL EXECUTION REQUEST-FACTOR STATUS" IS TRUTH ?
NO
YES
S405
SENDING OF EXECUTION COMMAND FOR DENSITY CONTROL
END

FIG. 4

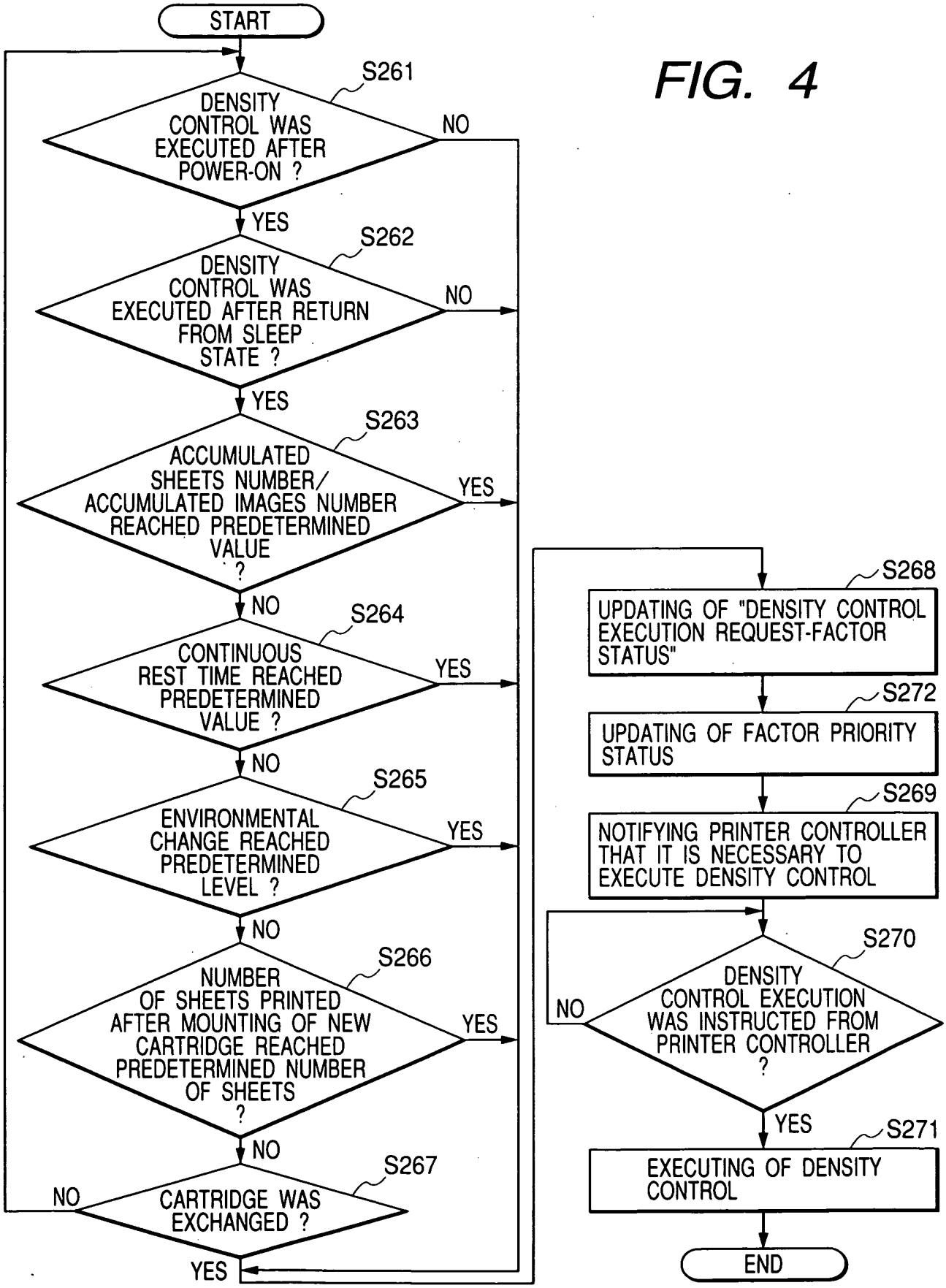

START
S261
DENSITY CONTROL WAS EXECUTED AFTER POWER-ON ?
NO
YES
S262
DENSITY CONTROL WAS EXECUTED AFTER RETURN FROM SLEEP STATE ?
NO
YES
S263
ACCUMULATED SHEETS NUMBER/ ACCUMULATED IMAGES NUMBER REACHED PREDETERMINED VALUE ?
YES
NO
S264
CONTINUOUS REST TIME REACHED PREDETERMINED VALUE ?
YES
NO
S265
ENVIRONMENTAL CHANGE REACHED PREDETERMINED LEVEL ?
YES
NO
S266
NUMBER OF SHEETS PRINTED AFTER MOUNTING OF NEW CARTRIDGE REACHED PREDETERMINED NUMBER OF SHEETS ?
YES
NO
S267
CARTRIDGE WAS EXCHANGED ?
NO
YES
S268
UPDATING OF "DENSITY CONTROL EXECUTION REQUEST-FACTOR STATUS"
S272
UPDATING OF FACTOR PRIORITY STATUS
S269
NOTIFYING PRINTER CONTROLLER THAT IT IS NECESSARY TO EXECUTE DENSITY CONTROL
S270
DENSITY CONTROL EXECUTION WAS INSTRUCTED FROM PRINTER CONTROLLER ?
NO
YES
S271
EXECUTING OF DENSITY CONTROL
END

FIG. 5

FIG. 5A	FIG. 5B
	FIG. 5C

FIG. 5A

S30

CALIBRATION EXECUTION REQUEST DETAILED STATUS	
BIT	CONTENTS
1st BIT	–
2nd BIT	DENSITY CONTROL EXECUTION REQUEST
3rd BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST
4th BIT	–
5th BIT	LASER INTENSITY MEASUREMENT EXECUTION REQUEST
6th BIT	DRUM PHASE ADJUSTMENT EXECUTION REQUEST
7th BIT	–
8th BIT	–
9th BIT	–
10th BIT	–
11th BIT	–
12th BIT	–
13th BIT	–
14th BIT	–
15th BIT	–
16th BIT	PARITY BIT

A

B

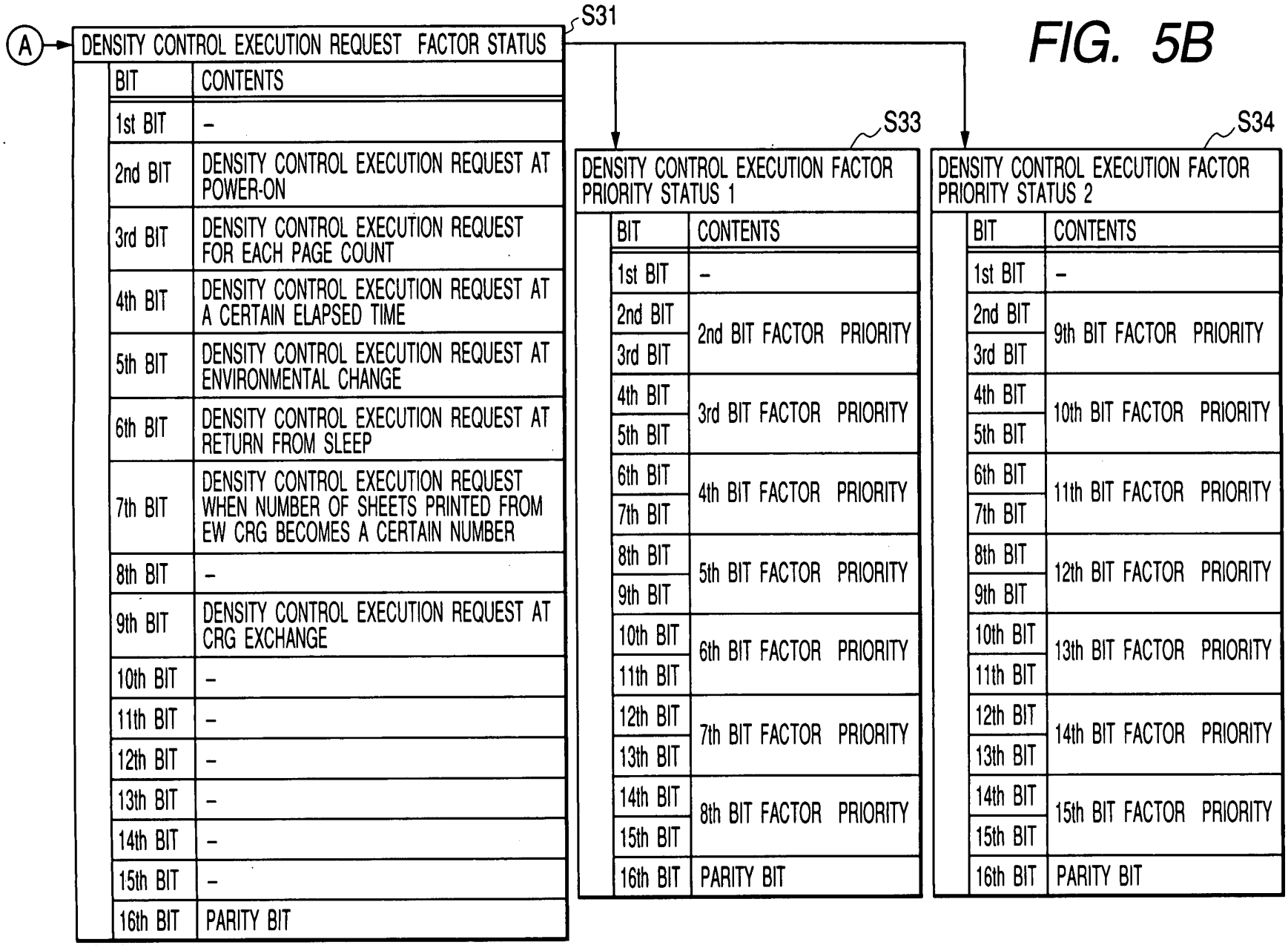

A
S31
DENSITY CONTROL EXECUTION REQUEST FACTOR STATUS
BIT
CONTENTS
1st BIT
-
2nd BIT
DENSITY CONTROL EXECUTION REQUEST AT POWER-ON
3rd BIT
DENSITY CONTROL EXECUTION REQUEST FOR EACH PAGE COUNT
4th BIT
DENSITY CONTROL EXECUTION REQUEST AT A CERTAIN ELAPSED TIME
5th BIT
DENSITY CONTROL EXECUTION REQUEST AT ENVIRONMENTAL CHANGE
6th BIT
DENSITY CONTROL EXECUTION REQUEST AT RETURN FROM SLEEP
7th BIT
DENSITY CONTROL EXECUTION REQUEST WHEN NUMBER OF SHEETS PRINTED FROM EW CRG BECOMES A CERTAIN NUMBER
8th BIT
-
9th BIT
DENSITY CONTROL EXECUTION REQUEST AT CRG EXCHANGE
10th BIT
-
11th BIT
-
12th BIT
-
13th BIT
-
14th BIT
-
15th BIT
-
16th BIT
PARITY BIT
S33
DENSITY CONTROL EXECUTION FACTOR PRIORITY STATUS 1
BIT
CONTENTS
1st BIT
-
2nd BIT
3rd BIT
2nd BIT FACTOR PRIORITY
4th BIT
5th BIT
3rd BIT FACTOR PRIORITY
6th BIT
7th BIT
4th BIT FACTOR PRIORITY
8th BIT
9th BIT
5th BIT FACTOR PRIORITY
10th BIT
11th BIT
6th BIT FACTOR PRIORITY
12th BIT
13th BIT
7th BIT FACTOR PRIORITY
14th BIT
15th BIT
8th BIT FACTOR PRIORITY
16th BIT
PARITY BIT
S34
DENSITY CONTROL EXECUTION FACTOR PRIORITY STATUS 2
BIT
CONTENTS
1st BIT
-
2nd BIT
3rd BIT
9th BIT FACTOR PRIORITY
4th BIT
5th BIT
10th BIT FACTOR PRIORITY
6th BIT
7th BIT
11th BIT FACTOR PRIORITY
8th BIT
9th BIT
12th BIT FACTOR PRIORITY
10th BIT
11th BIT
13th BIT FACTOR PRIORITY
12th BIT
13th BIT
14th BIT FACTOR PRIORITY
14th BIT
15th BIT
15th BIT FACTOR PRIORITY
16th BIT
PARITY BIT

FIG. 5B

FIG. 5C

S32

B → COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST FACTOR STATUS

BIT	CONTENTS
1st BIT	–
2nd BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT POWER-ON
3rd BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST FOR EACH PAGE COUNT
4th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT A CERTAIN ELAPSED TIME
5th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT ENVIRONMENTAL CHANGE
6th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT RETURN FROM SLEEP
7th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST WHEN NUMBER OF SHEETS PRINTED FROM NEW CRG BECOMES A CERTAIN NUMBER
8th BIT	–
9th BIT	COLOR MISREGISTRATION AMOUNT MEASUREMENT EXECUTION REQUEST AT CRG EXCHANGE
10th BIT	–
11th BIT	–
12th BIT	–
13th BIT	–
14th BIT	–
15th BIT	–
16th BIT	PARITY BIT

FIG. 6

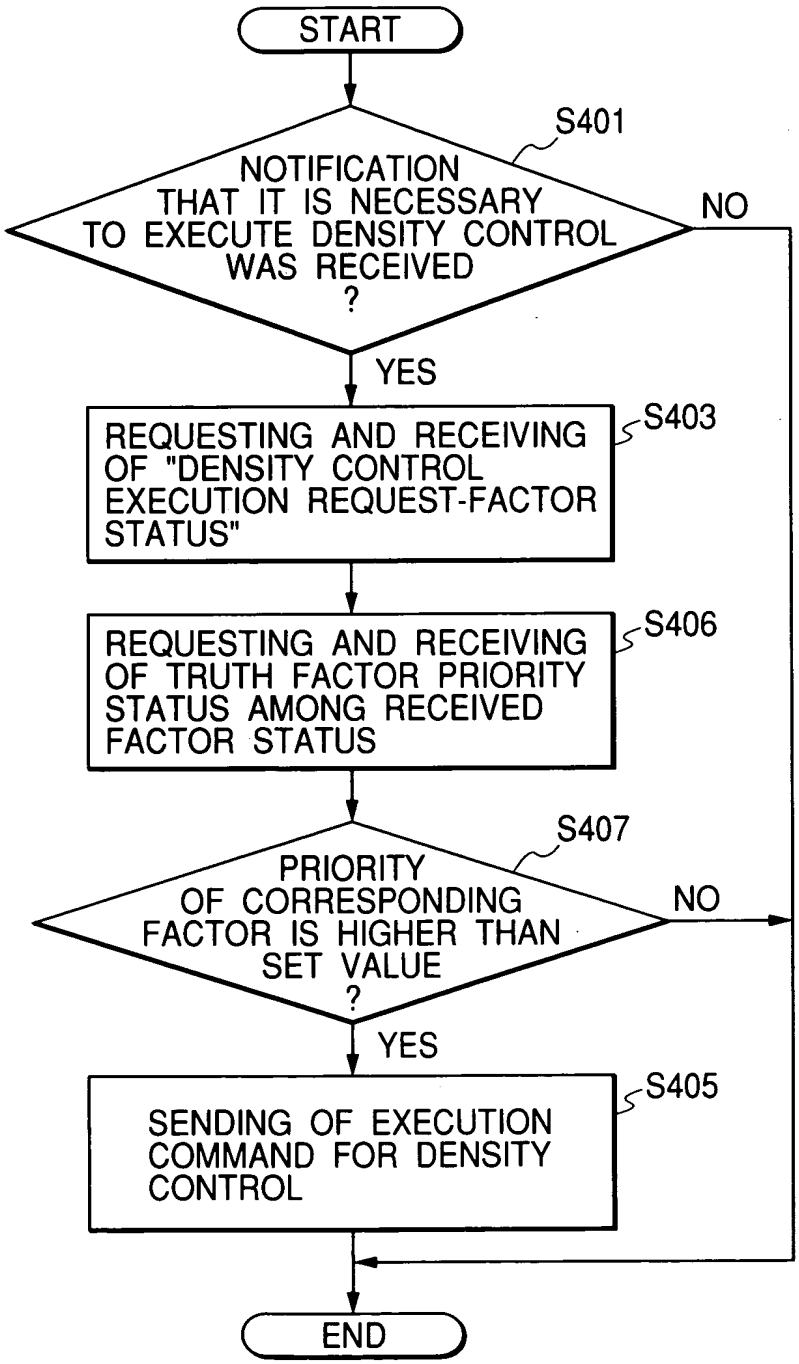

START
S401
NOTIFICATION THAT IT IS NECESSARY TO EXECUTE DENSITY CONTROL WAS RECEIVED ?
NO
YES
S403
REQUESTING AND RECEIVING OF "DENSITY CONTROL EXECUTION REQUEST-FACTOR STATUS"
S406
REQUESTING AND RECEIVING OF TRUTH FACTOR PRIORITY STATUS AMONG RECEIVED FACTOR STATUS
S407
PRIORITY OF CORRESPONDING FACTOR IS HIGHER THAN SET VALUE ?
NO
YES
S405
SENDING OF EXECUTION COMMAND FOR DENSITY CONTROL
END

FIG. 7

DENSITY CONTROL EXECUTION REQUEST GENERATION FACTOR	PRIORITY
DENSITY CONTROL EXECUTION REQUEST AT POWER-ON	2
DENSITY CONTROL EXECUTION REQUEST FOR EACH PAGE COUNT	1
DENSITY CONTROL EXECUTION REQUEST AT A CERTAIN ELAPSED TIME	0
DENSITY CONTROL EXECUTION REQUEST AT ENVIRONMENTAL CHANGE	1
DENSITY CONTROL EXECUTION REQUEST AT RETURN FROM SLEEP	0
DENSITY CONTROL EXECUTION REQUEST WHEN NUMBER OF SHEETS PRINTED FROM NEW CRG BECOMES A CERTAIN NUMBER	2
DENSITY CONTROL EXECUTION REQUEST AT CRG EXCHANGE	3

FIG. 8

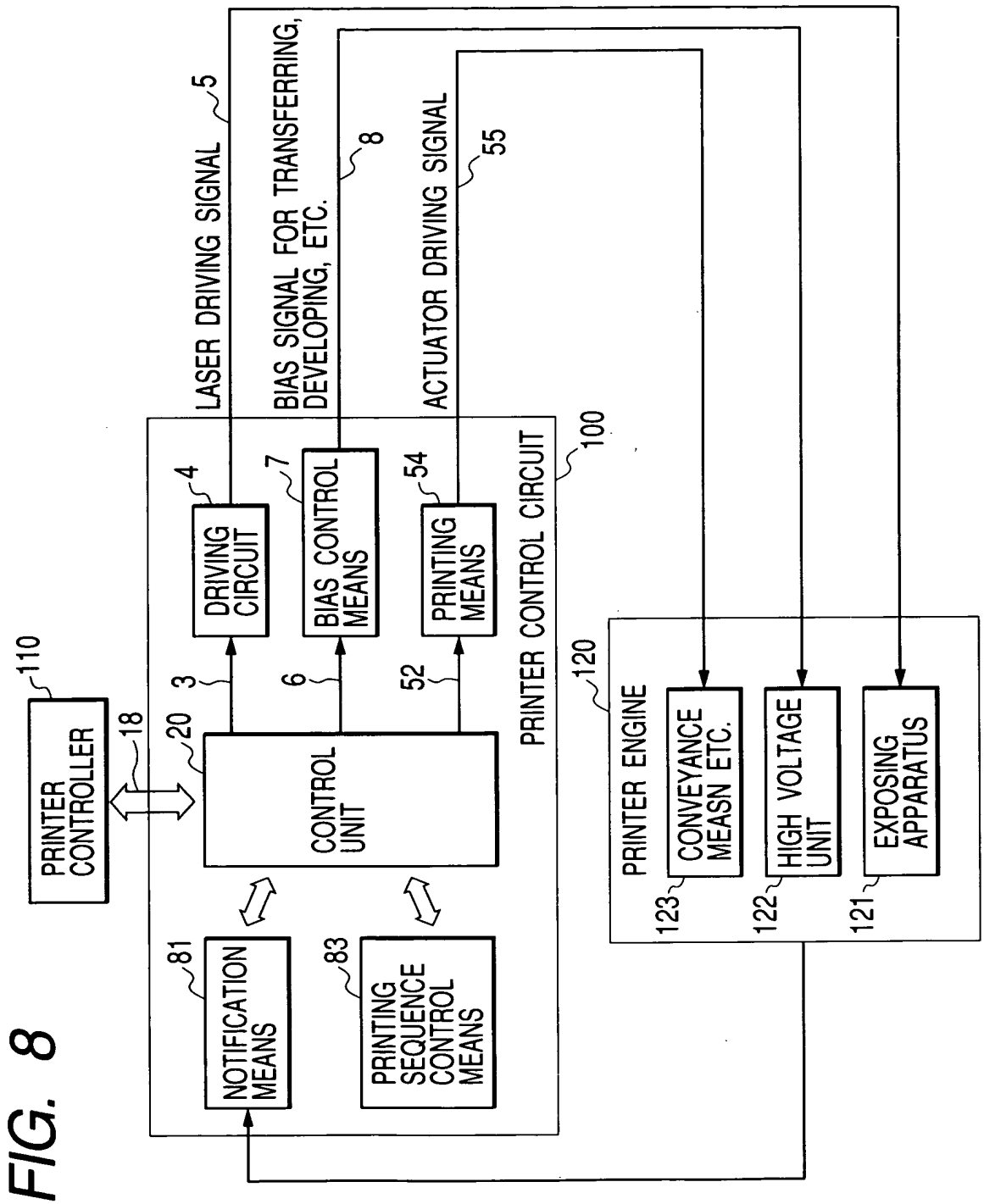

PRINTER CONTROLLER
110
18
20
CONTROL UNIT
3
DRIVING CIRCUIT
4
6
BIAS CONTROL MEANS
7
52
PRINTING MEANS
54
LASER DRIVING SIGNAL
5
BIAS SIGNAL FOR TRANSFERRING, DEVELOPING, ETC.
8
ACTUATOR DRIVING SIGNAL
55
PRINTER CONTROL CIRCUIT
100
81
NOTIFICATION MEANS
83
PRINTING SEQUENCE CONTROL MEANS
PRINTER ENGINE
120
CONVEYANCE MEASN ETC.
123
HIGH VOLTAGE UNIT
122
EXPOSING APPARATUS
121

FIG. 9

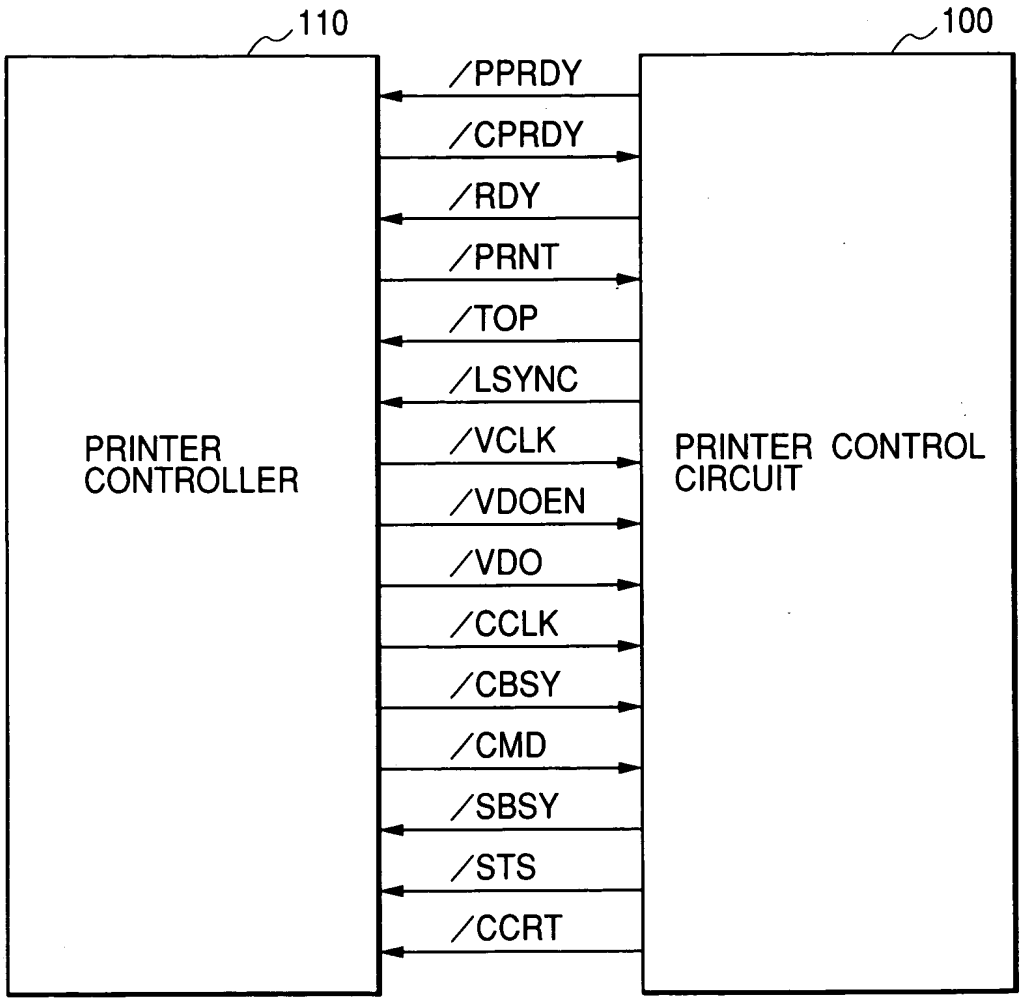

110
100
PRINTER CONTROLLER
PRINTER CONTROL CIRCUIT
/PPRDY
/CPRDY
/RDY
/PRNT
/TOP
/LSYNC
/VCLK
/VDOEN
/VDO
/CCLK
/CBSY
/CMD
/SBSY
/STS
/CCRT

FIG. 10

SIGNAL NAME	ABBRIVATION CODE	DIRECTION OF SIGNAL
PRINTER POWER READY	/PPRDY	CONTROLLER ← PRINTER
CONTROLLER POWER READY	/CPRDY	CONTROLLER → PRINTER
READY	/RDY	CONTROLLER ← PRINTER
PRINT	/PRINT	CONTROLLER → PRINTER
TOP OF PAGE	/TOP	CONTROLLER ← PRINTER
LINE SYNCHRONIZATION	/LSYNC	CONTROLLER ← PRINTER
VIDEO CLOCK	/VCLK	CONTROLLER → PRINTER
IMAGE ENABLE	/VDOEN	CONTROLLER → PRINTER
IMAGE	/VDO	CONTROLLER → PRINTER
CONTROLLER CLOCK	/CCLK	CONTROLLER → PRINTER
COMMAND BUSY	/CBSY	CONTROLLER → PRINTER
COMMAND	/CMD	CONTROLLER → PRINTER
STATUS BUSY	/SBSY	CONTROLLER ← PRINTER
STATUS	/STS	CONTROLLER ← PRINTER
SPEED CHANGE	/SPCHG	CONTROLLER ← PRINTER
PAPER DELIVERY	/PDLV	CONTROLLER ← PRINTER
TOP OF PAPER	/TOPR	CONTROLLER ← PRINTER
CONDITION CHANGE NOTIFICATION	/CCRT	CONTROLLER ← PRINTER

FIG. 11

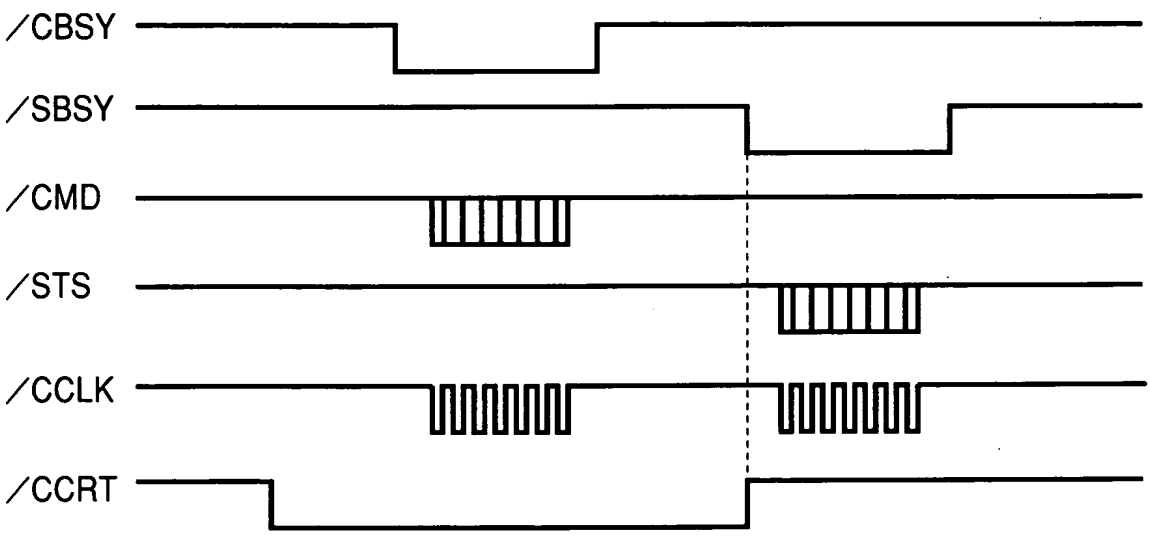


FIG. 12

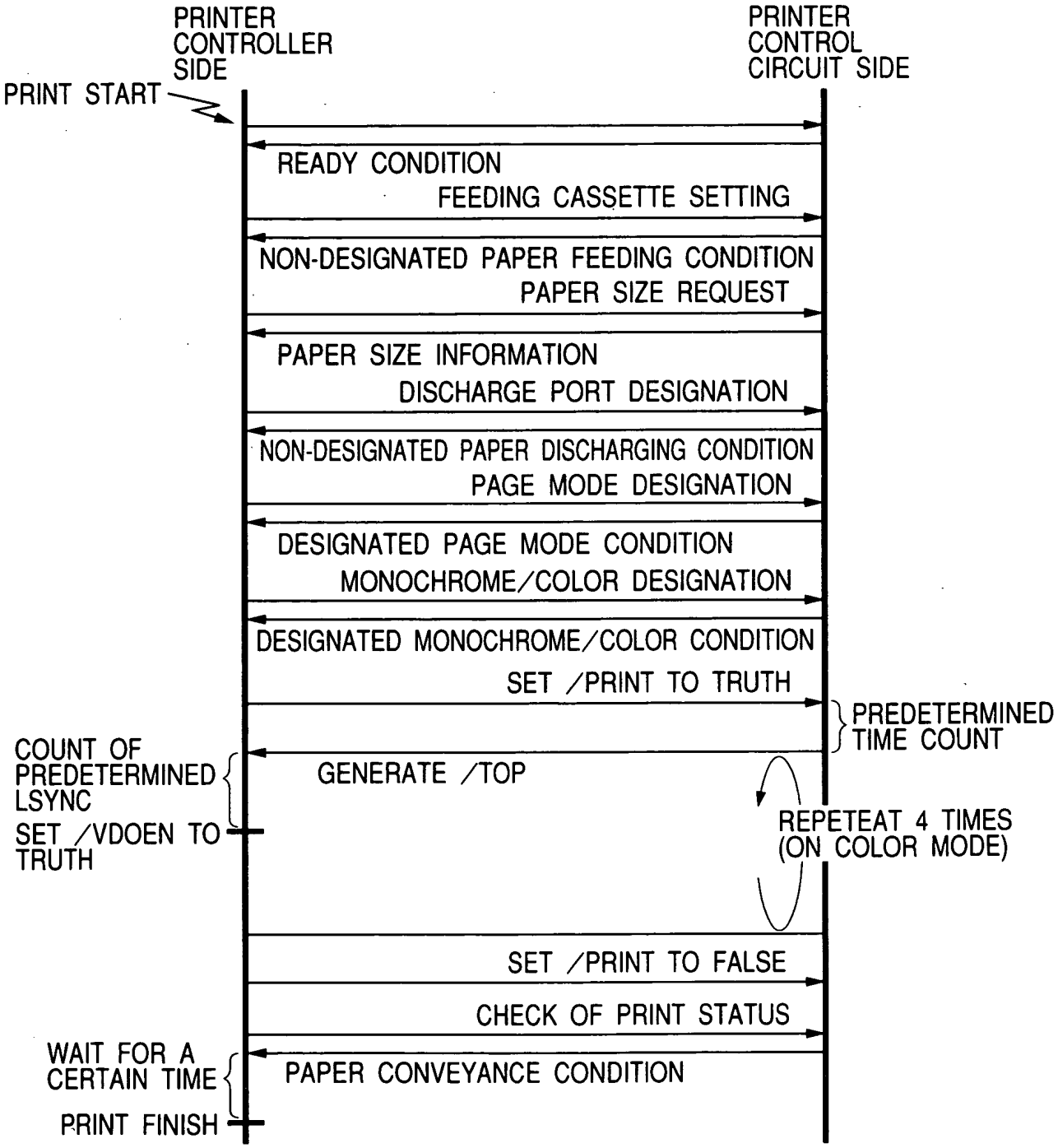
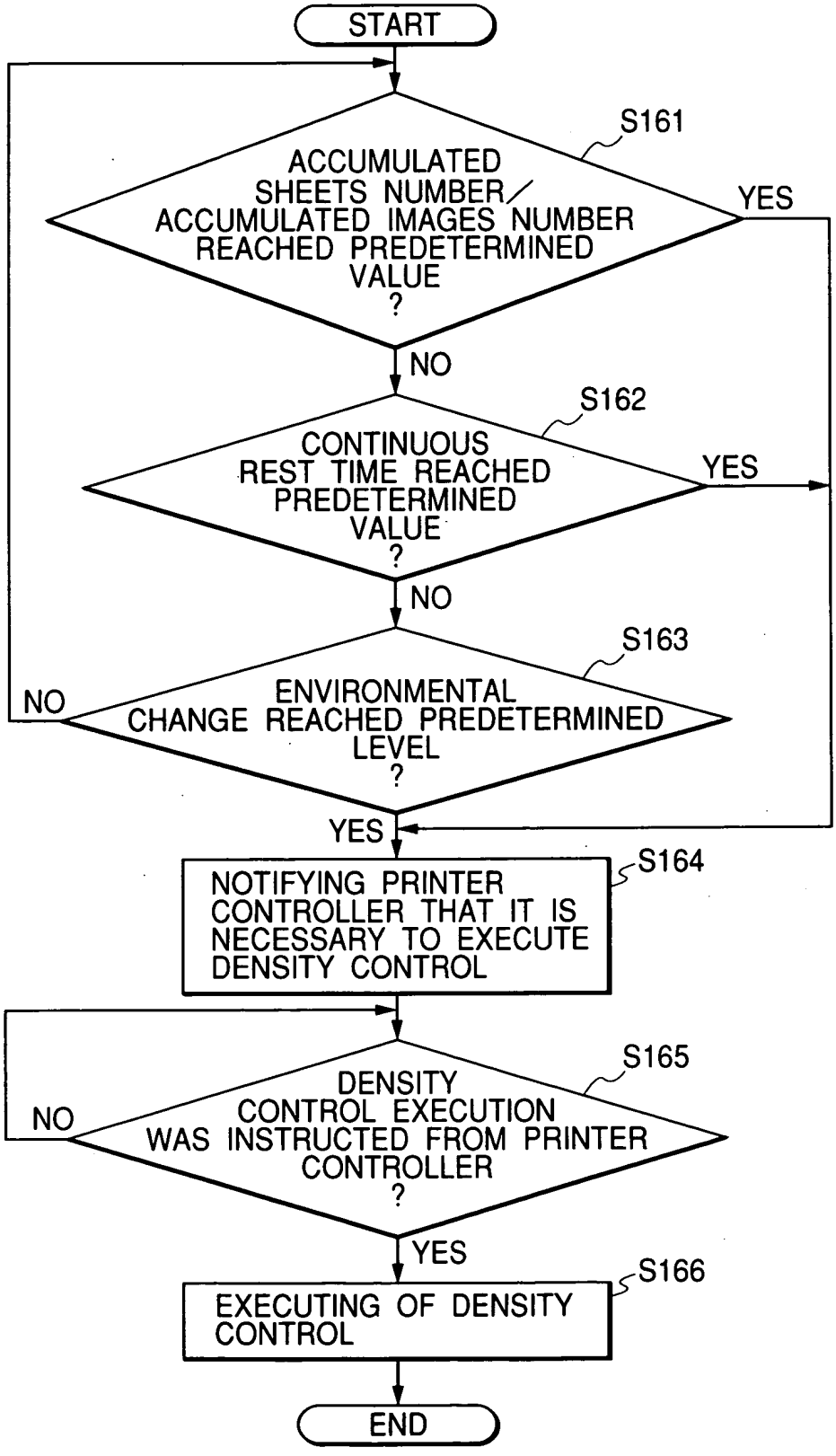

PRINTER CONTROLLER SIDE
PRINTER CONTROL CIRCUIT SIDE
PRINT START
READY CONDITION
FEEDING CASSETTE SETTING
NON-DESIGNATED PAPER FEEDING CONDITION
PAPER SIZE REQUEST
PAPER SIZE INFORMATION
DISCHARGE PORT DESIGNATION
NON-DESIGNATED PAPER DISCHARGING CONDITION
PAGE MODE DESIGNATION
DESIGNATED PAGE MODE CONDITION
MONOCHROME/COLOR DESIGNATION
DESIGNATED MONOCHROME/COLOR CONDITION
SET /PRINT TO TRUTH
PREDETERMINED TIME COUNT
COUNT OF PREDETERMINED LSYNC
GENERATE /TOP
SET /VDOEN TO TRUTH
REPETEAT 4 TIMES (ON COLOR MODE)
SET /PRINT TO FALSE
CHECK OF PRINT STATUS
WAIT FOR A CERTAIN TIME
PAPER CONVEYANCE CONDITION
PRINT FINISH

FIG. 13


START
S161
ACCUMULATED SHEETS NUMBER/ ACCUMULATED IMAGES NUMBER REACHED PREDETERMINED VALUE ?
YES
NO
S162
CONTINUOUS REST TIME REACHED PREDETERMINED VALUE ?
YES
NO
S163
ENVIRONMENTAL CHANGE REACHED PREDETERMINED LEVEL ?
NO
YES
S164
NOTIFYING PRINTER CONTROLLER THAT IT IS NECESSARY TO EXECUTE DENSITY CONTROL
S165
DENSITY CONTROL EXECUTION WAS INSTRUCTED FROM PRINTER CONTROLLER ?
NO
YES
S166
EXECUTING OF DENSITY CONTROL
END